Instruction 51-1255
11-29-11

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Installation Instructions: S&S® Crankcase for Harley-Davidson® Twin Cam 88® Engines

For all S&S Stock Bore, 4" Bore, and 4⅛" Bore Twin Cam 88® engine cases with 1999-2006 and 1984-1999 engine mounts.

DISCLAIMER:

S&S parts are designed for high performance, closed course, racing applications and are intended for the very experienced rider only. The installation of S&S parts may void or adversely effect your factory warranty. In addition such installation and use may violate certain federal, state, and local laws, rules and ordinances as well as other laws when used on motor vehicles used on public highways, especially in states where pollution laws may apply. Always check federal, state, and local laws before modifying your motorcycle. It is the sole and exclusive responsibility of the user to determine the suitability of the product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties, and risks associated therewith.

The words Harley®, Harley-Davidson®, H-D®, Sportster®, Evolution®, and all H-D part numbers and model designations are used in reference only. S&S Cycle is not associated with Harley-Davidson, Inc.

SAFE INSTALLATION AND OPERATION RULES:

Before installing your new S&S part it is your responsibility to read and follow the installation and maintenance procedures in these instructions and follow the basic rules below for your personal safety.

● Gasoline is extremely flammable and explosive under certain conditions and toxic when inhaled. Do not smoke. Perform installation in a well ventilated area away from open flames or sparks.

● If motorcycle has been running, wait until engine and exhaust pipes have cooled down to avoid getting burned before performing any installation steps.

● Before performing any installation steps disconnect battery to eliminate potential sparks and inadvertent engagement of starter while working on electrical components.

● Read instructions thoroughly and carefully so all procedures are completely understood before performing any installation steps. Contact S&S with any questions you may have if any steps are unclear or any abnormalities occur during installation or operation of motorcycle with a S&S part on it.

● Consult an appropriate service manual for your motorcycle for correct disassembly and reassembly procedures for any parts that need to be removed to facilitate installation.

● Use good judgment when performing installation and operating motorcycle. Good judgment begins with a clear head. Don't let alcohol, drugs or fatigue impair your judgment. Start installation when you are fresh.

● Be sure all federal, state and local laws are obeyed with the installation.

● For optimum performance and safety and to minimize potential damage to carb or other components, use all mounting hardware that is provided and follow all installation instructions.

● Motorcycle exhaust fumes are toxic and poisonous and must not be inhaled. Run motorcycle in a well ventilated area where fumes can dissipate.

IMPORTANT NOTICE:

Statements in this instruction sheet preceded by the following words are of special significance.

⚠ WARNING

Means there is the possibility of injury to yourself or others.

⚠ CAUTION

Means there is the possibility of damage to the part or motorcycle.

NOTE

Other information of particular importance has been placed in italic type.

S&S recommends you take special notice of these items.

WARRANTY:

All S&S parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at S&S's option if the parts are returned to us by the purchaser within the 12 month warranty period or within 10 days thereafter.

In the event warranty service is required, the original purchaser must call or write S&S immediately with the problem. Some problems can be rectified by a telephone call and need no further course of action.

A part that is suspect of being defective must not be replaced by a Dealer without prior authorization from S&S. If it is deemed necessary for S&S to make an evaluation to determine whether the part was defective, a return authorization number must be obtained from S&S. The parts must be packaged properly so as to not cause further damage and be returned prepaid to S&S with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If after an evaluation has been made by S&S and the part was found to be defective, repair, replacement or refund will be granted.

ADDITIONAL WARRANTY PROVISIONS:

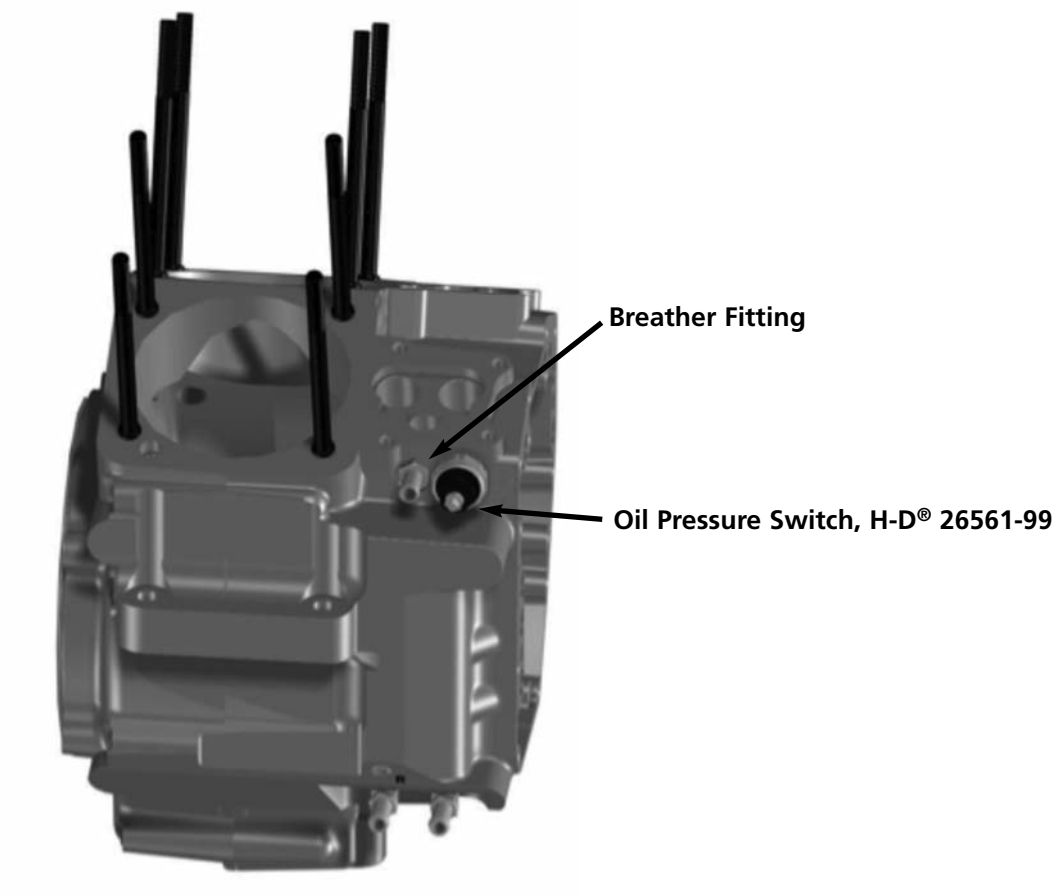
(1) S&S shall have no obligation in the event an S&S part is modified by any other person or organization.

(2) S&S shall have no obligation if an S&S part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the S&S part.

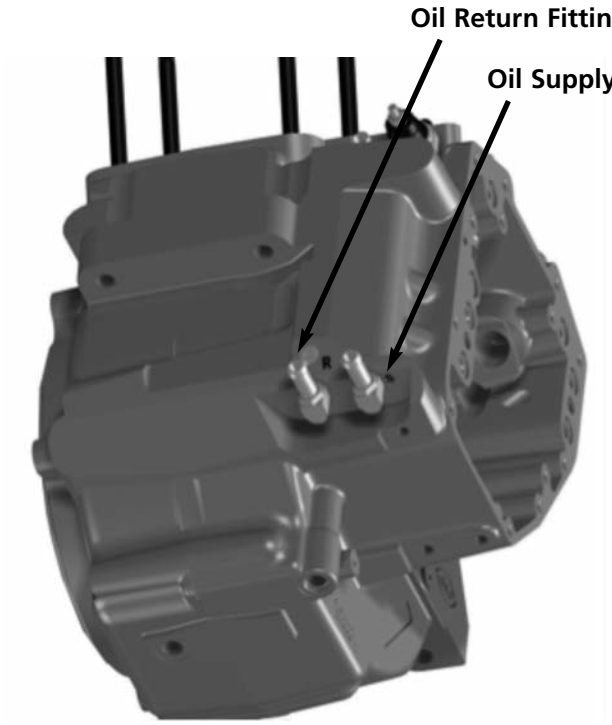
(3) S&S shall not be liable for any consequential or incidental damages resulting from the failure of an S&S part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between S&S and a customer.

(4) S&S parts are designed exclusively for use in Harley-Davidson® and other American v-twin motorcycles. S&S shall have no warranty or liability obligation if an S&S part is used in any other application.

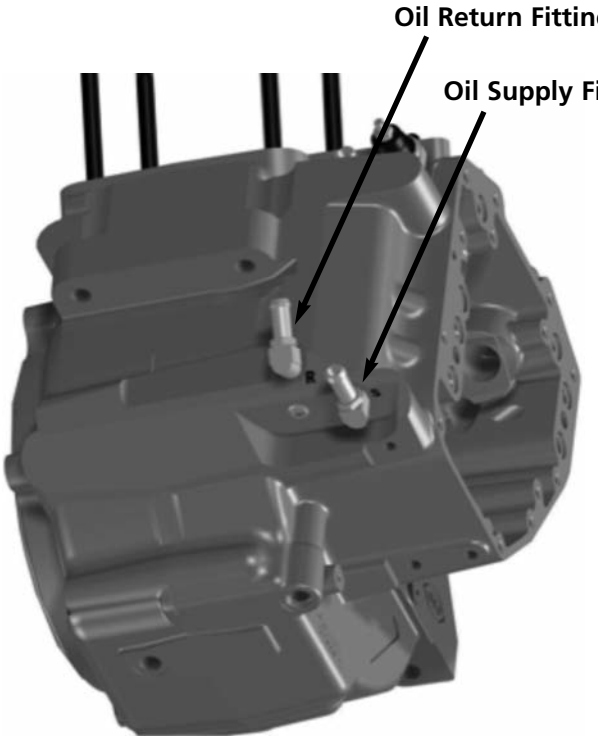
Oil Fitting Locations For 1984-'99 Chassis



Crankcase Breather & Oil Pressure Switch Location



Oil Supply & Return Fitting Locations



Oil Supply & Return Fitting Locations for some Harley-Davdison® Dyna® Models

*Non-counter balanced only.

Please read these instructions thoroughly before starting work. Proceed with the installation only after they are completely understood. These instructions should be supplemented by the appropriate OEM service manual for your motorcycle. Follow all safety information.

INTRODUCTION
S&S® crankcase assemblies for Harley-Davidson® Twin Cam 88® non-counterbalanced engine applications. Installation can be performed by any Harley-Davidson® repair shop equipped to do complete engine overhauls. No special tools other than those used in normal engine building operations are required.

Stock bore cases are perfect for stock replacement applications, 4" bore cases are a natural for use with the S&S® Hot Set Up Kit® for Twin Cam 88, and 4⅛ bore cases make it possible to build really large displacement custom engines.

S&S® Crankcases for 1999-'06 Big Twin Engines

Bore Size	Silver	Black	Polished
Stock Bore	106-4039	31-0172	N/A
4" Bore	106-4041	31-0175	N/A
4⅛" Bore (Stock Stud Pattern)	106-4057	31-0181	31-0182
4⅛" Bore (S&S Stud Pattern)	106-4043	31-0178	31-0179

NOTE: *S&S crankcases are sold in matched sets only. Individual case halves are not available.*

ADDITONAL OIL LINE INSTALLATION KIT REQUIRED
- Dyna® - PN 31-0424
- FL - PN 31-0425

ADDITIONAL FEATURES:
- Greater overall strength than stock crankcases, especially in the front motor mount, an important consideration in high performance applications.
- All oil passages between the crankcase and gear cover are o-ring sealed.
- Compatible with stock components. Use stock oil pump, cam support plate, gear cover, etc.
- 1999-2002 Timken® style sprocket shaft bearing. (Included)
- Uses 2003-up pinion shaft bearing
- Special order crankcases offer your choice of cylinder spigot bore, cylinder stud pattern, and your choice of rear motor mount style - 1999-06 or 1984-1999.

KIT CONTENTS
- Crankcase with camshaft bearings and cylinder studs installed
- Sprocket Shaft Bearings
- S&S Reed Valve Assembly
- Pinion Bearing
- Hardware Package
- Certificate of Origin
- Instructions

POLISHING, PAINTING, PLATING, OR POWDERCOATING S&S CASES
S&S Cycle cautions against modifying these crankcases due to the possibility of damaging or weakening them. Modifying S&S crankcases in any fashion voids all manufacturer warranties. Should the customer elect to modify the crankcases regardless, it is imperative that they and the information tag attached to them be inspected beforehand to confirm that the correct model, style, bore size, etc. have been provided. The customer must confirm that crankcases and related parts are correct before assembling them or having them modified in any manner, and assumes all liability for modifications.

The customer must also verify that the serial numbers on the crankcase and attached information tag correspond with those on the certificate of origin and packing carton.

Under no circumstance will S&S be held responsible for expenses related to the modification of any S&S part in the event warranty service is required. Modified parts will not be accepted for credit or exchange. This will apply regardless of cause or fault: customer, retailer, manufacturer, or other.

For further information, contact S&S Technical Services at 608-627-8324, FAX 608-627-1488 or e-mail sstech@sscycle.com

NOTE: *Modification includes but is not limited to appearance changes such as painting, powdercoating, plating, and polishing. Proper preparation for these procedures as well as the processes themselves may require the use of polishing compounds, chemicals or procedures that are potentially harmful to crankcases.*

⚠ CAUTION

Passages and internal cavities may become obstructed by residues from materials used to polish, paint, plate or powdercoat surfaces. Additionally, surface finishing processes can damage critical machined surfaces. Any of the above may cause premature wear, damage or failure of other engine components as well as the crankcases themselves.

Powdercoating - Subjecting heat-treated alloys such as those used in S&S® crankcases to excessive heat can drastically alter their strength and their critical properties. The degree of change depends upon the temperatures reached and the duration of exposure. When powder coating or otherwise processing alloy parts, S&S exposes them to a maximum temperature of 370°F for no longer than 20 minutes. Under no circumstances should parts be heated past 400°F!

PREPARATION AND INSTALLATION

1- Inspection

a- Inspect crankcases to confirm that they are correct style and machined for correct bore size. Refer to tag wired to crankcases.

b- Verify that serial numbers on crankcases match numbers on packing carton and certificate of origin. Contact S&S immediately if numbers do not match.

NOTE: *Valid certificate of origin is required for any transfer or sale of aftermarket crankcases or complete engines built with aftermarket crankcases. Certificate of origin is required to title and license any motorcycle which is to be driven on public streets and highways.*

2- Crankcase Test Fit

If possible, bare crankcase should be positioned in motorcycle frame before assembly to check clearances.

a- Test-fit instructions for S&S crankcases with 1999-06 engine mounts.

Position case in frame, check for clearance at frame, and alignment to transmission. It is a good idea to replace rubber engine and transmission mounts at this time. Old mounts deform over time and may and induce unwanted stresses on the engine case.

b- Test-fit instructions for S&S crankcases with 1984-1999 engine mounts.

S&S crankcase for 1999-06 models being installed in 1984-1999 frames is essentially the same as stock, although additional clearancing and shimming may occasionally be required. When this style of case is solid mounted instead of rubber mounted, additional care must be taken in installing the case. Main areas of concern are between cases and frame motor mounts. Checking clearance around and between case mounting bosses and frame is necessary to ensure that crankcase rests squarely on motor mount pad and no stress is applied to crankcases when mounting bolts are tightened. Shimming may be required to compensate for variances between frames. The oil lines for the T124V engine connect to the engine on the bottom rear of the cam chest. The supply to the engine is the pipe thread on the right marked with an S. There are two pipe threads for the return oil located to the left of the supply pipe thread and marked with an R.

NOTE: *Crankcases damaged by improper installation are not covered under warranty.*

⚠ CAUTION

Improper alignment of engine and frame mounts may cause abnormal stresses resulting in damage to crankcases or other parts.

To check clearance perform following steps:

1- Assemble case halves using case bolts. Tighten to snug. Torquing bolts to final specification is not necessary.
2- Clean frame engine mounts and carefully remove any irregularities from mounting surfaces. Also inspect crankcase mounting bosses for burrs.
3- Position case assembly in frame.
4- Install engine mounting bolts in motor mounts, and check clearance between mounting bosses on cases and frame and any other areas where frame and cases may contact each other. Bolts may be difficult to install if contact is severe.
5- If cases contact frame, remove them and relieve just enough material in offending area to provide clearance.
6- Place cases in frame, install one rear mounting bolt and snug nut.
7- Measure gap between crankcase mounting bosses and frame motor mounts with feeler gauge to determine if shimming is required.
8- If gap exists, fabricate shim just thick enough to fill gap.
9- Install opposite corner shim and mounting bolt and nut, and tighten identical to other bolt.
10- Check other corners with feeler gauge to confirm thickness required is same as before. If not, determine cause and correct.

3- Pre-Assembly Cleaning

Clean crankcases in hot soapy water or solvent to remove any dirt or contamination which may have been introduced during shipping, handling, or set-up. Dry components and check passages with compressed air.

⚠ WARNING

Compressed air and particles dislodged by compressed air are potentially harmful. Wear protective goggles when using compressed air and always direct air stream away from yourself and others nearby.

Hardware Identification and Installation

NOTES

- *When installing hardware, be careful not to cross-thread fittings or damage threads. Damage caused by improper installation of hardware will not be covered under warranty.*
- *To prevent galling, apply anti-seize compound, pipe sealant, or Teflon® tape to threads of all steel fittings prior to installation in crankcase.*
- *If Teflon tape is used, loose tape must not enter crankcase or oil passages. Do not apply tape to first 2-3 threads that screw into hole. If fittings are removed or replaced be sure no tape shreds remain in holes. Tape shred could block oil passages causing restriction of oil flow.*

⚠ CAUTION

Restricted oil flow may result in extensive engine damage not covered under warranty.

4- Piston Jet Installation

a- Apply a thin film of clean engine oil to new O-ring.

b- Seat O-ring in groove of piston jet mounting flange.

c- With pinhole in the jet pointing upward, install using two T20 TORX screws. Apply Loctite® 243 Blue, then tighten to 20-30 in-lbs.

⚠ CAUTION

Piston jets must be installed using the correct o-ring. Leaving out a piston jet o-ring, installing too small of an o-ring, or pinching an o-ring at assembly will cause oil to by-pass the jet, resulting in low oil pressure.

NOTE: *Always use a new o-rings when re-installing jets.*

5- Oil Line Installation

a- For 1999-2006 Harley-Davidson® FL models

⚠ CAUTION

Oil line installation is crucial to engine life. If you are not sure that you can properly perform this operation, please contact the S&S Tech Department for a referral to a shop in your area.

NOTE: *Installation instructions are based on an engine and transmission already in the chassis.*

FL Oil Line Install Kit (PN 31-0425)

NOTE: *Apply thread sealant to all tapered pipe threads.*

1- Remove the stock oil supply and return fittings from the transmission.

2- Install two supplied ⅜ NPT pipe plugs (S&S PN 50-8330) in the oil fitting location.

NOTE: *Apply thread sealant to all tapered pipe threads.*

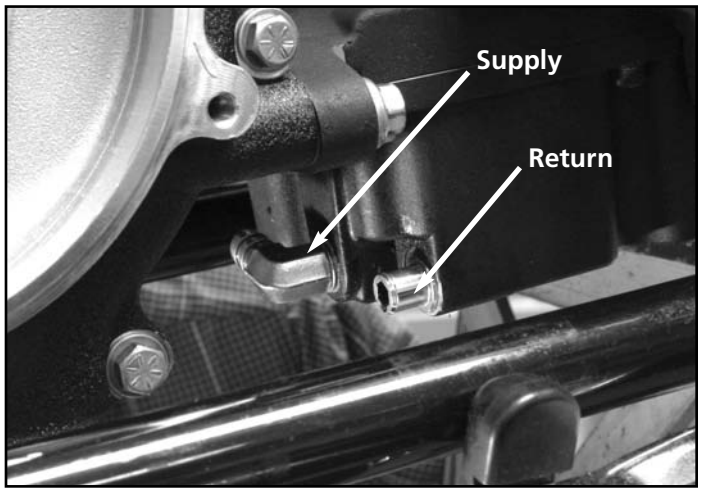
3- Remove crankcase vent fitting (S&S PN 50-0451) and set aside for later use. Install supplied vent fitting (S&S PN 50-0449 is for use with 2002-'06 with 7/16 ID vent hose or 50-0454 is for use with 1999-'01 with ⅜ ID vent hose) with O-ring installed on fitting. **See Picture 1.**

Picture 1 (2002-'06 Shown)

4- Install the vent hose and clamp (S&S PN 50-8156 or 50-8076-S) on the new fitting.

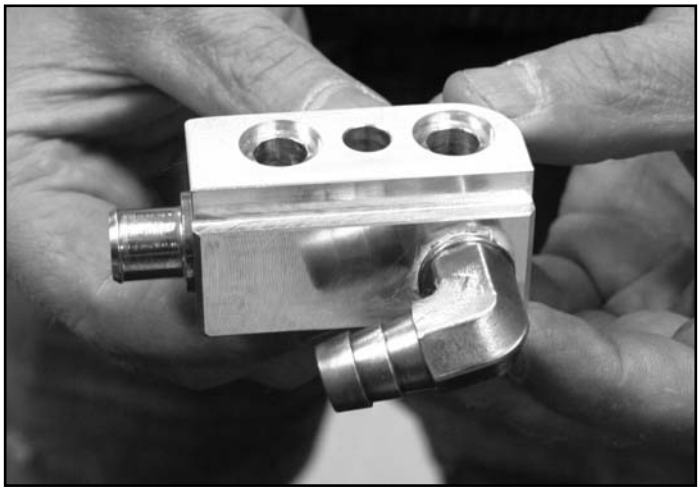
NOTE: *The stock vent hose is reused in this step.*

5- Position a drain container in front of the oil pan. Next, locate and remove the two plugs on the forward face of the oil pan allowing the oil to drain. Once the oil is completely drained, replace the 3/8" pipe-plug with a 90-degree fitting (S&S PN 50-8288). Position barb of fitting toward right side of bike at an angle slightly above horizontal as shown in **Picture 2**. Next, install the oil return fitting (S&S PN 50-0451) with O-ring (S&S PN 50-8008) in the drain plug location.



Picture 2

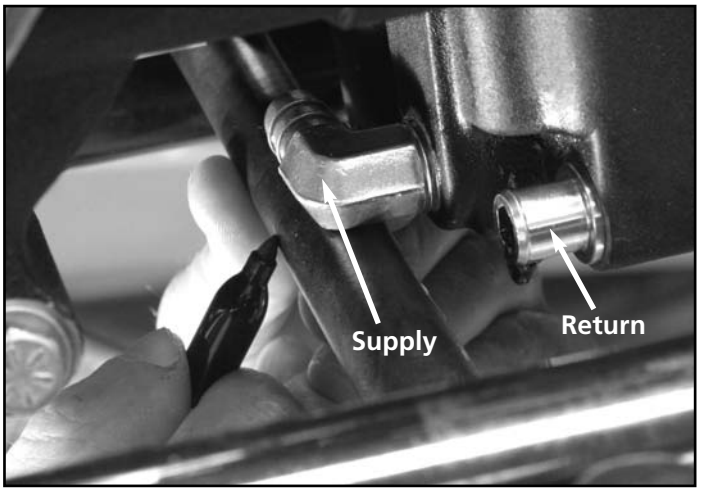
6- Remove cover plate that was shipped on crankcase from the bottom surface of the rear motor mount. The oil line block will be installed in this location. Assemble the oil line block by installing the 90-degree fitting (S&S PN 50-8288) and the oil return fitting (S&S PN 50-0451) with O-ring (S&S PN 50-8008) into the block, as shown in **Picture 3**.



Picture 3

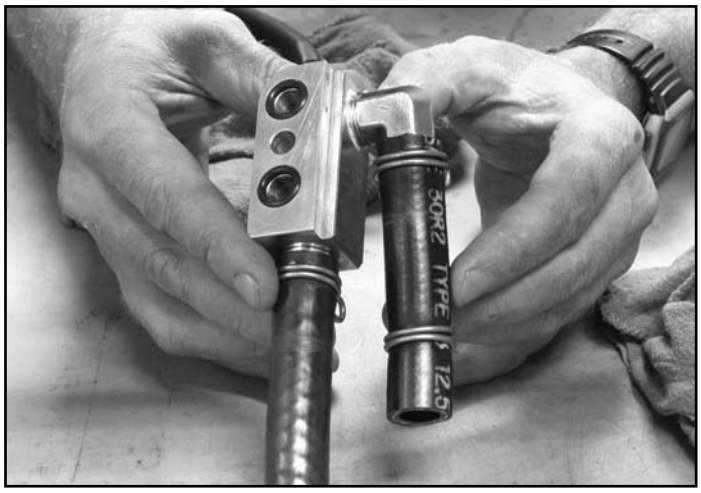
7- Mount the oil line block on the crankcase using 5/16-18 x 1¾" long screw (S&S PN 50-0437)—do not final tighten as it will be removed again.

8- The next step is to measure and then cut the oil hoses. The straight hose connects the 90 degree fittings of the oil line block and oil pan. The bent hose runs between the oil return fittings on the oil line block and oil pan. **See PIcture 4.**



Picture 4

9- Remove the oil line block from the engine case. Install the supplied clamps (S&S PN 50-8156) on the lines between the fittings. **See Picture 5.**



Picture 5

10- Install O-Rings (S&S PN 50-8066) in the counter bores of the oil line block. Position the oil line block on the engine case and tighten the screw to 18 ft-lbs. of torque with blue threadlock on the threads. **See Picture 6.**

Picture 6

11- Position hose clamps over the fittings.

12- Refill oil reservoir.

13- Start engine and check for oil leaks.

To Change Engine Oil in the Future

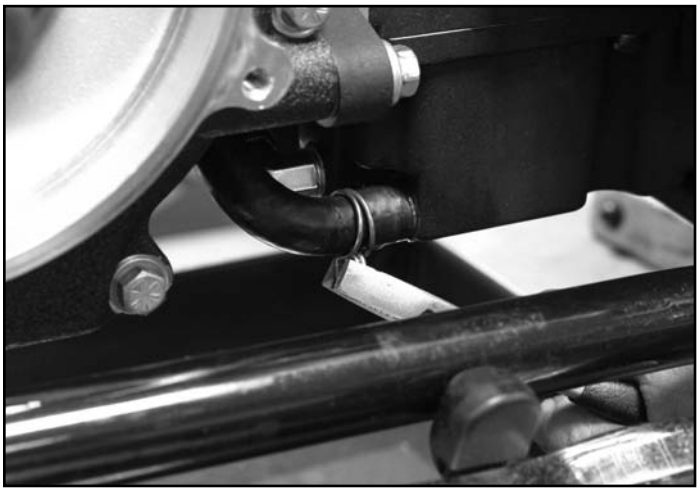
1- Slide hose clamp off of fitting along hose. **See Picture 7.**

2- Place an oil drain pan under front of oil pan.

3- Remove hose from fitting to drain oil.

4- Reinstall hose and clamp.

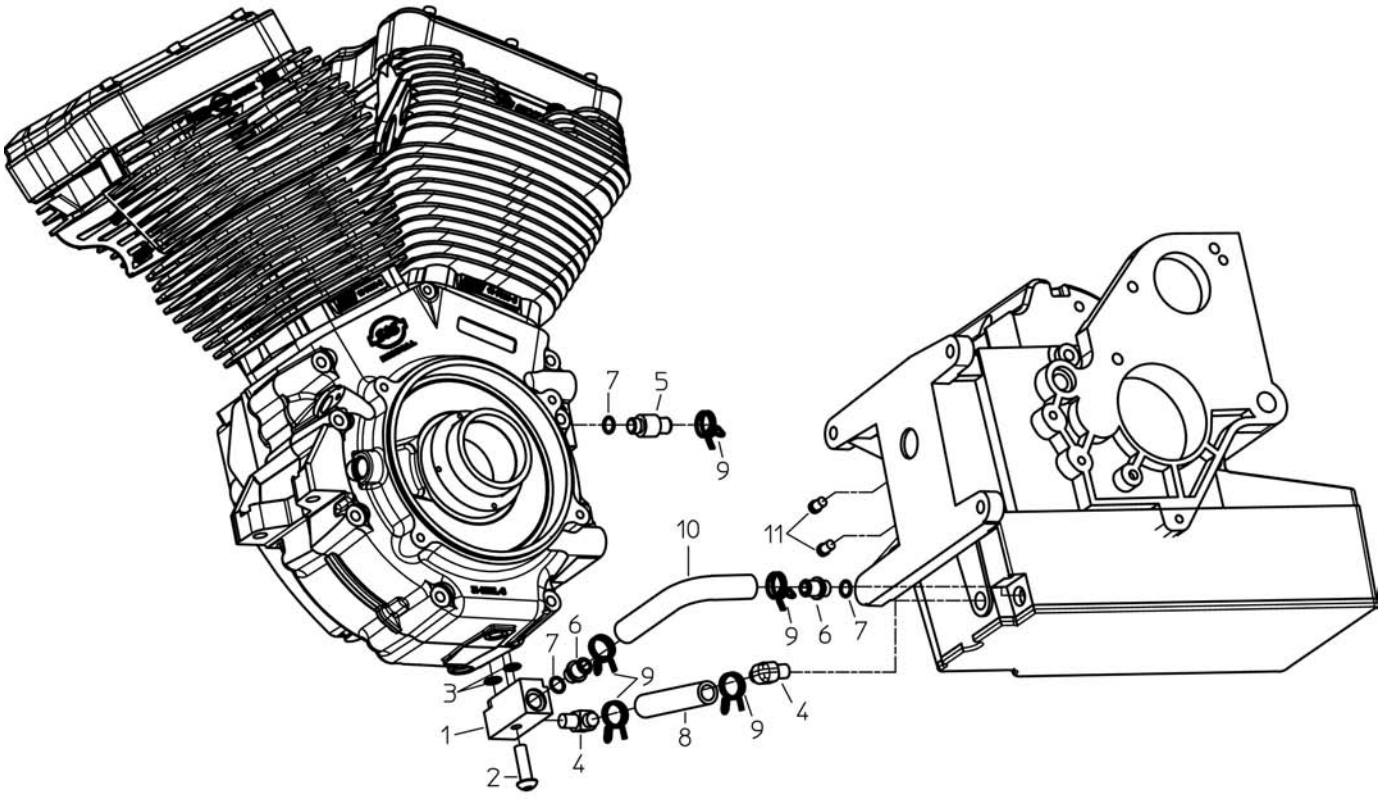
5- Continue with recommended oil change procedure.



Picture 7

S&S® Oil Line Installation Kit Replacement Parts for Harley-Davidson® FL Models

1- Block, oil line **31-0430**
2- BHSHCS, 5/16-18 x 1¾ **50-0437**
3- O-ring *(10 pack)* **50-8066**
4- Fitting, pipe, 90 degree **50-8288**
5- Fitting,
7/16 (2002-'06) **50-0449**
⅜ (1999-'01) **50-0454**
6- Fitting, ½ **50-0451**
7- O-ring **50-8008**
8- Hose, oil supply **50-8157**
9- Clamp,
Double wire spring *(5 pack)* **50-8293**
Hose, spring **50-8076-S**
10- Hose, return oil line, 90 degree bend **50-8291**
11- Plug, pipe (⅜ NPT) **50-8330**

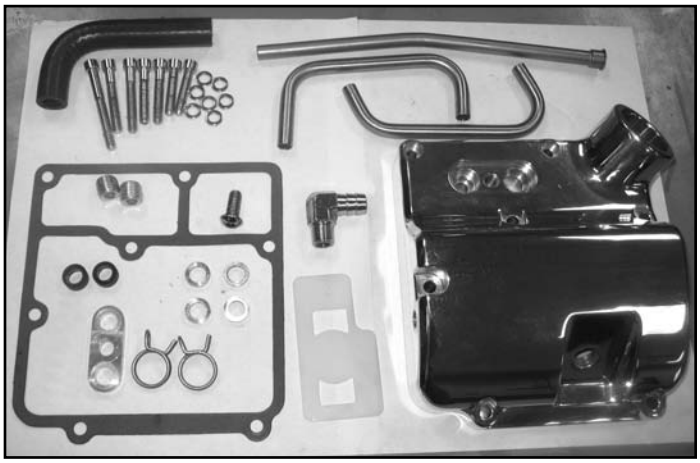


b- For 1999-'05 Harley-Davidson® Dyna® models

⚠ CAUTION

Oil Line installation is crucial to engine life. If you are not sure that you can properly perform this operation, please contact the S&S® Tech Department for a referral to a shop in your area.

NOTE: *Installation instructions are based on an engine and transmission already in the chassis.*

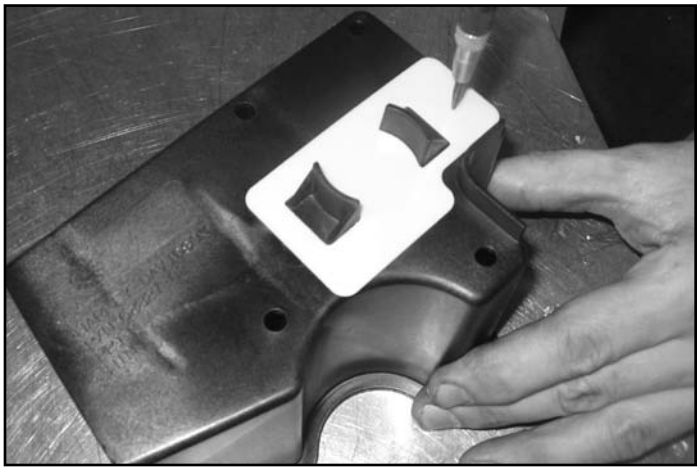


Dyna® Oil Line Install Kit (PN 31-0424)

1- Remove the stock oil supply and return fittings from the transmission.
2- Install two supplied ⅜ NPT pipe plugs (S&S PN 50-8330) in the oil fitting location.

NOTE: *Apply thread sealant to all tapered pipe threads.*

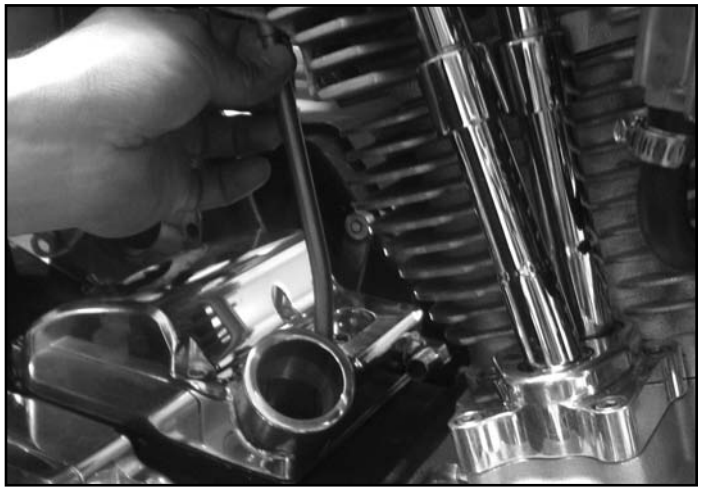
3- Drain the oil from the oil pan—see the proper factory service manual for instructions—and then remove the oil pan from the motorcycle.
4- Place the supplied template (53-0080) over the oil pan baffle and use a scribe to mark the location of the ½" hole as shown in **Picture 8**. Use a drill press to machine the ½" hole as marked in **Picture 8a**. Use a small file or deburring tool to make sure no chips or pieces are left on the ½" hole and then clean the oil pan and baffle with solvent before reinstalling the pan with a new gasket on the motorcycle.



Picture 8

Picture 8a

5- Remove the transmission top cover. Remove the neutral indicator switch, vent line and fitting from the transmission top cover.
6- Install the neutral indictor switch, vent line and fitting on the new S&S transmission top cover (S&S PN 56-1615).
7- Slide the oil feed line (S&S PN 31-0442) through the hole in the top cover closest to the oil filler/dipstick boss. Place a new top cover gasket (S&S PN 56-1256) on the transmission case and position the new S&S top cover on it. Rotate the oil feed line so it will pass through the ½" hole in the baffle. Be sure the bend in the oil feed line orientation is to the rear of the motorcycle. **See Picture 9.**



Picture 9

8- Install the transmission top cover screws and washers according to Detail A. Use blue threadlock on the screws, but leave them loose at this time. *See Detail A in exploded view of replacement parts for Harley-Davidson® Dyna® on page 10.*

9- Remove the oil line retention plate, plugs and seals from the top of the engine crankcase. Remove seals from the plugs. Discard the plugs.

Picture 10

10- To install the oil lines (S&S PN 31-0444 and 31-0443), orient the ends and openings so they are parallel. Insert the lines through the oil line retention plates, then the included washers (S&S PN 50-0439) and, last the seals (S&S PN 50-8271) on each line end. The ends of the lines should protrude through the seals about ⅛ inch.

11- Position oil line assembly on both the transmission top cover and crankcase and press down until lines are firmly seated in the counterbores in the crankcase and transmission cover.

Picture 11

12- Press the oil line retention plates into place until they seat. Install the two screws (5/16-18 x ¾ button head) through the oil line retention plates. First screw goes in the transmission top cover and the second mounts into the crankcase near the rear motor mount. Treat both screws with blue threadlock and tighten to 18-ft-lbs.

13- Tighten transmission top cover screws to 100-120 in-lbs.

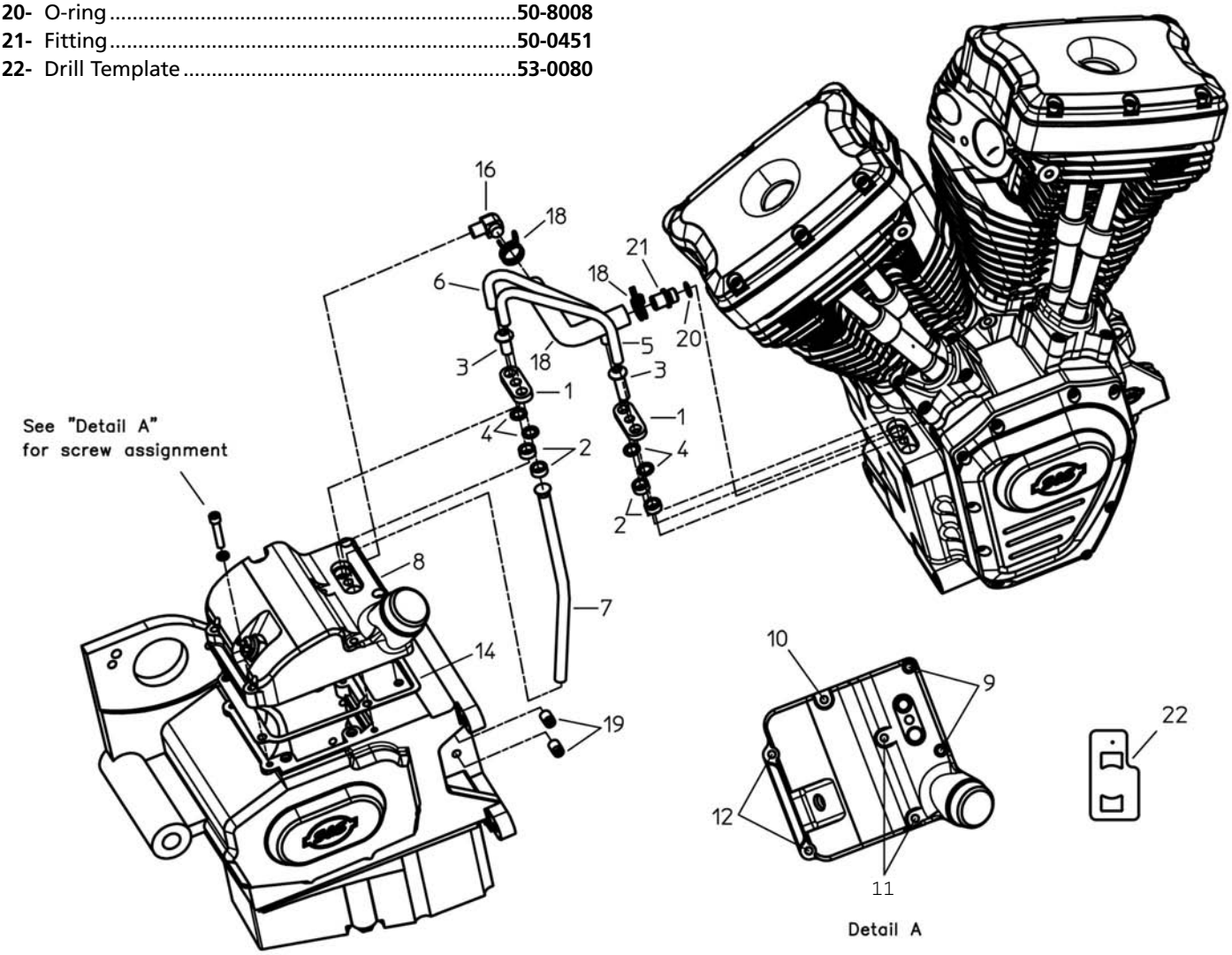
14- Install the vent line (S&S PN 50-8291) with clamps (S&S PN 50-8156).

15- Reconect neutral switch wires.

16- Check function of neutral switch.

S&S® Oil Line Installation Kit Replacement Parts for Harley-Davidson® Dyna® Models

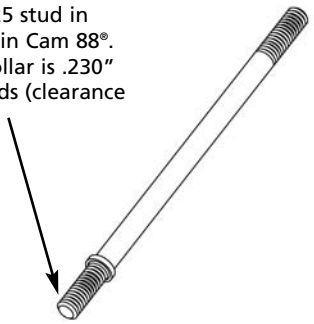
1- Plate **50-0440**
2- Seal **50-8271**
3- BHSHCS 5/16-18 x ¾ **50-0438**
4- Washer **50-0439**
5- Line, oil supply **31-0444**
6- Line, oil return **31-0443**
7- Line sssembly, Oil feed **31-0442**
8- Top cover **56-1615**
9- SHC - ¼-20 x 1½" **50-0255**
10- SHC - ¼-20 x 2¼" **50-8455**
11- SHC - ¼-20 x 1¾" **50-8458**
12- SHC - ¼-20 x 1¼" **50-7463**
13- Washer **50-8451**
14- Gasket, tranny top cover **56-1256**
15- Template **53-0080**
16- Fitting **50-8289**
17- Hose, 90 degree bend **50-8291**
18- Clamp **50-8156**
19- Plug, pipe (⅜ NPT) **50-8330**
20- O-ring **50-8008**
21- Fitting **50-0451**
22- Drill Template **53-0080**



6- Crankcase Cylinder Studs

S&S® crankcases for Harley-Davidson® Twin Cam 88® engines are shipped with cylinder studs installed Before assembling engine, verify that the lower collar of each stud is contacting the case deck, and that the studs are torqued to 10 ft.-lbs.

Use only S&S #31-2325 stud in S&S crankcases for Twin Cam 88®. Threaded end with collar is .230" shorter than OEM studs (clearance requirements)



a- Removal

1- Thread two ⅜"-16 nuts onto end of stud and tighten them together.

2- Use a wrench on the lower nut to remove stud.

b- Installation

1- Place a ball bearing into the end of a head bolt then place the head bolt on end of the stud without a collar.

2- Screw stud into the case, collar side down, until collar contacts case. Torque stud to 10-ft.-lbs.

⚠ CAUTION

Do not carry the crankcase by the studs. It stresses the crankcase and studs in ways they are not designed to handle. Also, it is easy to drop and damage the case when it is carried by the studs.

7- Flywheel Assembly

S&S® crankcases for Harley-Davidson® Twin Cam 88® engines are designed to use any S&S flywheel assembly, or 1999-2002 Harley-Davidson flywheel assembly.

NOTE: *2003-up Harley-Davidson® flywheel assemblies will not fit in S&S crankcases. For 2003, Harley-Davidson started using a flat roller bearing on the sprocket shaft. S&S cases must use flywheel assemblies that use dual taper roller bearings.*

NOTE: *2003-up flat roller sprocket shaft bearing is not compatible with S&S cases*

⚠ CAUTION

It is not recommended to attempt using a 2003-up flywheel assembly by changing the sprocket bearing from the flat roller style to the earlier dual taper style. The sprocket bearing inner race of the 2003-up sprocket shaft is a non-serviceable item, per the OEM service manual. Attempting to remove the pressed on sprocket bearing inner race from the sprocket shaft of 2003 Harley-Davidson® flywheel assemblies can easily result in serious damage to the flywheel assembly.

a- Sprocket shaft bearings: Use 1999-2002 style taper roller bearings, included with the crankcase. They must be used with a 1999-2002 style flywheel assembly, purchased separately.

⚠ CAUTION

Installing and setting the clearances for 1999-2002 style taper roller bearings is a critical operation. install and set clearances per 1999-2002 Harley-Davidson service manual.

NOTES

- *S&S crankcases secure the pinion bearing in place with a snap ring. 2003-up Harley-Davidson cases do not.*
- *1999-2002 pinion shaft bearing is not compatible with S&S crankcases. It has a larger outside diameter than the 2003-up style used by the S&S cases.*

8- Camshaft And Cam Plate Installation

S&S Camshafts install using the instructions packaged with them. Harley-Davidson camshafts install per 1999-2003 Twin Cam 88® service manual.

9- S&S Reed Valve Installation

The S&S Reed Valve Assembly 31-2071 included with the crankcase is an effective way to control internal air pressures inside the crankcase, reducing oil carry over, blow-by, and oil leakage. It is a one-way valve that allows for the smooth passage of air through and out of the engine breathing system. Installation of the S&S Reed valve is optional. It is not required for crankcase assembly. However, its use is highly recommended. It installs easily, and requires no extra machining. A separate Instruction sheet is packaged with the Reed Valve. **See Picture 12.**

S&S Reed Valve assembly and wave washer

Picture 12

10- Oil Pump, Lifters, Lifter Covers, and Cam Cover Installation

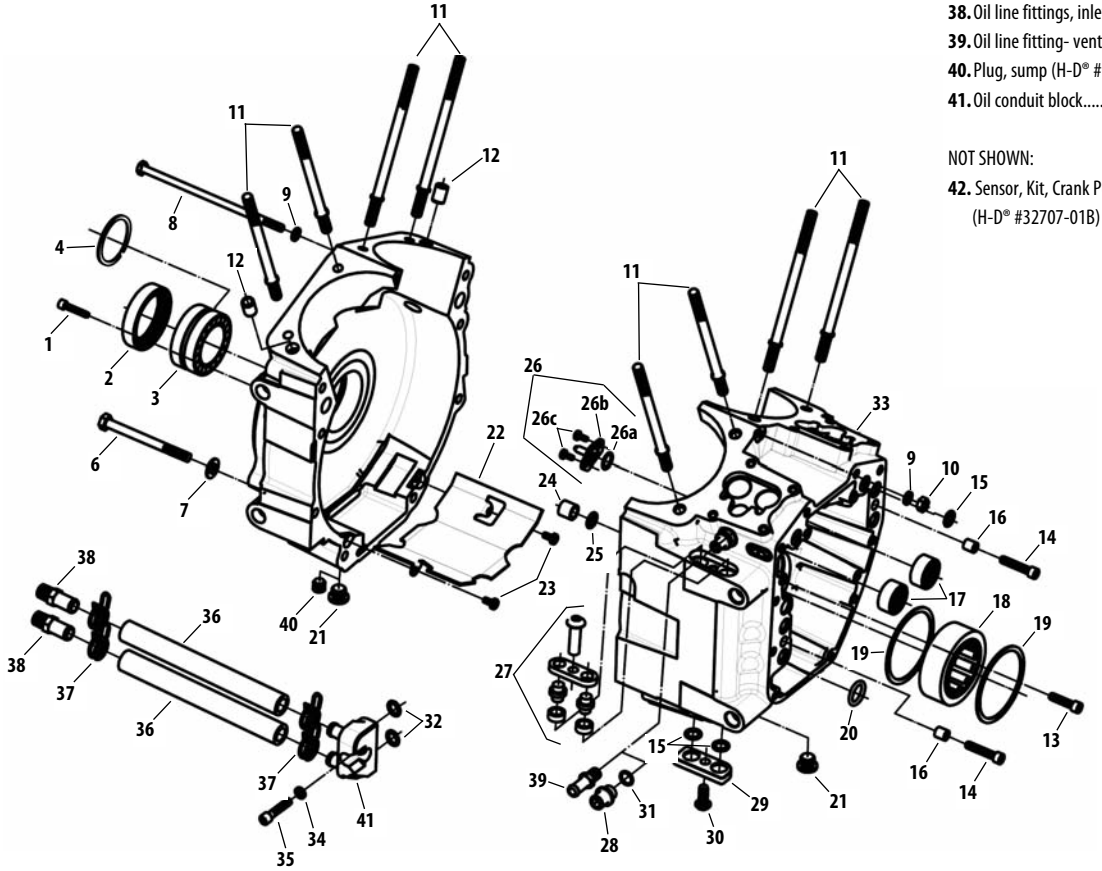
These and any other crankcase components not listed install per 1999-2003 Harley-Davidson® Twin Cam 88® service manual.

Replacement Parts for S&S® Crankcases for Harley-Davidson® Twin Cam 88® Engines

1. Bolt, stator 10-24 x1" SHC - 4 required (H-D® #2720)
Each **50-0044**
10 pack **50-0194**
2. Seal, sprocket shaft (H-D® #12068) **31-4035**
3. Bearing, Timken® sprocket shaft (H-D ®#9028) **31-4013**
4. Timken Main Bearing Spacers
Fits 1¼" stock diameter shaft.
.0995" - .1005" (H-D® #9124 ..... **31-4071**
.1015" - .1025" (H-D® #9125) **31-4072**
.1035" - .1045" (H-D® #9126) **31-4073**
.1055" - .1065" (H-D® #9127) **31-4074**
.1075" - .1085" (H-D® #9128) **31-4075**
.1195" - .1205" (H-D® #9134) **31-4076**
5. Hardware Kit, 4" Bore, S&S 4⅛" Bore,1999-'12 bt
Chrome **106-4905**
Zinc **106-4904**
6. Bolt, case 5⁄16" -18 x 3½" HHC - 8 required
Chrome (each) **50-0254-S**
6 pack **106-3452**
Zinc (each) **50-0117**
7. Washer, flat 5⁄16" x 11⁄16" x 1⁄16" - 8 required **50-7034**
8. Bolt center case ¼" -28 x 6" HHC Grade 8
Each **50-0020**
5 pack **50-0221**
9. Washer, flat, ¼" x .474" x .050"
Each **50-7020**
10 pack **50-7076**
10. Nut ¼"-28 Grade 8 - 1 required **50-5011**
11. Cylinder stud - 8 required (H-D® #16834-99A)
Each **31-2325-S**
8 pack **31-2340**
12. Dowel, cylinder deck - 2 required (H-D® #16595-99A)
Each **50-8177**
4 pack **50-8177-4**
10 pack **50-8179**
13. Bolt, cam plate ¼" -20 x 1" SHC - 4 required (H-D® #4741A)
Each **50-0084**
10 pack **50-0244**
14. Bolt, cam plate ¼" -20 x 1¼" SHC - 2 required (each) **50-0008**
10 pack **50-0153**
15. O-ring, cam plate - 9 required (H-D® #11301) (each) **50-8066-S**
10 pack **50-8066**
16. Dowel, cam plate - 2 required (H-D® #16589-99A) **50-8148-S**
17. Bearing, inner cam (H-D® # 9198) **31-4080**
18. Bearing, pinion shaft – Fits all S&S and OEM 2000-'02
(Balanced models only) & all OEM 2003-up
(H-D® #24604-00D) **31-4085**
19. Retaining ring, internal, spiraloc - 2 required
(H-D® #35114-02) **50-8160-S**
20. O-ring, oil pump 11⁄16" I.D. x 15⁄16" O.D. x ⅛" CS
(H-D® #11190, 11157, 11293) **50-8039**
10 pack **93-4110**
21. Plug, magnetic drain **50-8335**
22. Baffle plate **31-0119-S**
23. Screw 10-24 x 3⁄8" pan head - 2 required
Each **50-0050**
10 pack **50-0139**
24. Dowel, case alignment - 2 required (H-D® #16573-83)
Each **50-8023**
10 Pack **50-8109**
25. O-ring, case alignment,- 2 required (H-D® #26432-76A)
9⁄16" I.D. x 11⁄16" O.D. x 1⁄16" CS **50-8034-S**
26. Piston Oiler Jet Kit (H-D® #22371-99)
Each **31-2025B**
2 pack **31-2026**
Piston Oiler Jet Kit includes:
a. O-ring,(-014),.500" ID x .625" OD (H-D® #11140, 11273)
Each **50-8032**
10 pack **50-8130**
b. Jet, Assembly, Piston Cooling (H-D® #22307-99)
Each **31-2025B**
c. Screw, Torx Panhead, 8-32 x 3⁄8", Zinc, Steel (H-D® #68042-99)
Each **50-0054-S**
27. Hardware kit, oil line plugs ..... **N/A**
28. Fitting, crankcase vent,
1999-'00 ..... **50-0454**
2001-'06 (each) **50-0449**
2 pack **106-1171**
29. Plate, oil line cover **106-1184**
30. BHSH CS 5⁄16" -18 x ¾" (10 Pack) **106-1178**
31. O-ring (H-D® #11105, 11275) (each) **50-8008**
10 pack **50-8078**
32. O-ring, 9⁄16" I.D. x 11⁄16" O.D. x 1⁄16" CS **50-8034-S**
33. Pin, dowel (H-D® #18535-99)
Each **50-8195-S**
2 pack **50-8195**

These parts are for crankcases manufactured before 8-1-06:
34. Washer, flat ¼" chrome (each) **50-7017**
12 pack **50-7013**
35. Bolt, ¼" -20 x ¾" SHCS (each) **50-0067**
12 pack **50-0144**
36. Hose, oil, inlet/outlet **50-8157**
37. Spring clips **50-8156-S**
38. Oil line fittings, inlet/outlet - 2 required ..... **N/A**
39. Oil line fitting- vent ..... **N/A**
40. Plug, sump (H-D® #765) **50-8330**
41. Oil conduit block **31-2076**

NOT SHOWN:
42. Sensor, Kit, Crank Position, 1984-2007 bt
(H-D® #32707-01B) **55-1051**



All reference to H-D® part numbers is for identification purposes only. We in no way are implying that any of S&S Cycle's products are original equipment parts or that they are equivalent to the corresponding H-D® part number shown.